IN THE CLAIMS:

1. – 40. (Cancelled)

41. (NEW) A subwavelength grating formed using polymer-dispersed liquid crystal materials, the subwavelength grating comprising:

a plurality of periodic polymer channels and polymer-dispersed liquid crystal (PDLC) channels;

wherein the polymer channels and PDLC channels are disposed perpendicular to a front surface of the subwavelength grating, and the combined thickness of the PDLC channel and polymer channel are substantially less than an optical wavelength thereby allowing the grating to exhibit form birefringence.

42. (NEW) The subwavelength grating of claim 41, wherein a combined thickness of the polymer channel and the PDLC channel is selected to form a half-wave plate.

43. (NEW) The subwavelength grating of claim 42, wherein a retardance of the subwavelength grating is equivalent to one-half of a wavelength, wherein the combined thickness of the polymer channel and the PDLC channel is equivalent to the $\lambda/(2|\Delta n|)$, where λ is the wavelength and Δn is the difference between the extraordinary index of refraction of the subwavelength grating and the ordinary index of refraction of the subwavelength grating.

44. (NEW) The subwavelength grating of claim 41, wherein a combined thickness of the polymer channel and the PDLC channel is selected to form a quarter-wave plate.

45. (NEW) The subwavelength grating of claim 44, wherein a retardance of the subwavelength grating is equivalent to one-quarter of a wavelength, wherein the combined thickness of the polymer channel and the PDLC channel is equivalent to the $\lambda/(4|\Delta n|)$, where λ is the wavelength and Δn is the difference between the extraordinary index of refraction of the subwavelength grating and the ordinary index of refraction of the subwavelength grating.

46. (NEW) The subwavelength grating of claim 41, wherein the polymer-dispersed liquid crystal material comprises a polymerizable monomer, a liquid crystal, a cross-linking monomer, a coinitiator, and a photinitiator dye.

47. (NEW) The subwavelength grating of claim 46, wherein the polymer-dispersed liquid crystal material further comprises a surfactant.

48. (NEW) An optical switch comprising:

two cross polarizers; and

a half-wave plate interposed between the two cross polarizers, the half-wave plate comprising a plurality of periodic planes of polymer channels and polymer-dispersed liquid crystal (PDLC) channels, wherein the PDLC channels and polymer channels are disposed perpendicular to a front surface of the optical switch,

wherein the optical switch passes incident light absent a switching voltage and blocks incident light when a switching voltage is applied to the optical switch.

49. (NEW) The optical switch of claim 48, wherein the polymer-dispersed liquid crystal material comprises a polymerizable monomer, a liquid crystal, a cross-linking monomer, a coinitiator, and a photinitiator dye.

50. (NEW) The optical switch of claim 49, wherein the polymer-dispersed liquid crystal material further comprises a surfactant.

51. (NEW) An optical switch comprising:

a beam splitter;

a mirror; and

a quarter-wave plate interposed between the beam splitter and the mirror, the quarter-wave plate comprising a plurality of periodic planes of polymer channels and polymer-dispersed liquid crystal (PDLC) channels, wherein the PDLC channels and polymer channels are disposed perpendicular to a front surface of the grating,

wherein the beam splitter reflects reflected light from the mirror absent a switching voltage, and when a switching voltage is applied to the optical switch, reflected light passes through the beam splitter and is retroreflected on the incident beam.

52. (NEW) The optical switch of claim 51, wherein the polymer-dispersed liquid crystal material comprises a polymerizable monomer, a liquid crystal, a cross-linking monomer, a coinitiator, and a photinitiator dye.

53. (NEW) The optical switch of claim 52, wherein the polymer-dispersed liquid crystal material further comprises a surfactant.

54. (NEW) A method for reducing the switching voltage of a single electrically switchable subwavelength grating comprising:

stacking together a plurality of single electrically switchable subwavelength gratings, each electrically switchable subwavelength grating comprising a plurality of periodic planes of polymer channels and polymer-dispersed liquid crystal (PDLC) channels, wherein the PDLC channels and polymer channels are disposed perpendicular to a front surface of the electrically switchable subwavelength grating;

electrically connecting the stack of single electrically switchable subwavelength gratings in parallel; and

applying an electric field in order to switch the stack of single electrically switchable subwavelength gratings between an on state and off state, wherein the electric field required to switch the stack of single electrically switchable subwavelength gratings is lower than an electric field required to switch a single electrically switchable subwavelength grating.

55. (NEW) The method of claim 54, wherein the single electrically switchable subwavelength grating polymer-dispersed liquid crystal material comprises a polymerizable monomer, a liquid crystal, a cross-linking monomer, a coinitiator, and a photinitiator dye.

56. (NEW) The method of claim 55, wherein the polymer-dispersed liquid crystal material further comprises a surfactant.